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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/645,801	08/20/2003	Joseph S. Stam	AUTO 222	9297

28167 7590 09/29/2006

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EXAMINER	
KIM, CHONG R	
ART UNIT	**PAPER NUMBER**
2624	

DATE MAILED: 09/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/645,801	STAM ET AL.	
	Examiner	Art Unit	
	Charles Kim	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 October 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-53 and 64-74* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *21-23,29-34 and 41* is/are allowed.

6)☒ Claim(s) *1-20,24-28,35-40,42-53,64-74* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment and Arguments

1. Applicant's amendment filed on October 24, 2005 has been entered and made of record.

2. Applicant's arguments have been fully considered, but they are not deemed to be persuasive for at least the following reasons.

Applicants argue in their remarks that the prior art references do not teach the claimed subject matter "as discussed during the personal interview." No specific reasons were given as to why the references do not teach the claimed features and thus, the arguments are not persuasive. In addition, due to applicant's amendments, new grounds of rejections were applied, the details of which are provided below.

Claim Objections

The following quotation of 37 CFR § 1.75 (d)(1) is the basis of objection:

> (d)(1) The claim or claims must conform to the invention as set forth in the remainder of the specification and the terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description. (See § 1.58(a)).

3. Claim 41 is objected to under 37 CFR § 1.75 (d)(1) as reciting features that are not supported by the *description* of the specification. The Examiner was unable to find an instance in the applicant's description that provides support for the claimed features. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 4-19, 64 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Referring to claim 4, the phrase "wherein ***at least one output*** of said neural network comprises ***at least three states***" is not supported by the applicant's specification. The Examiner was unable to find an instance in the applicant's specification that supports this feature.

Referring to claim 64, the phrase "threshold number of streetlights per area" is not supported by the applicant's specification as originally filed. While the applicant's original specification provides support for a "threshold streetlight density," it fails to specify that it comprises a number of streetlights per area. Note that "streetlight density" could also be interpreted to mean the streetlight level or the streetlight level per area. Thus, the phrase "threshold number of streetlights per area" is not specifically supported by the applicant's original specification.

Claims not mentioned specifically are dependent from non-supported antecedent claims.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 10, 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Referring to claim 10, the phrase "***the*** group of light source characteristics" in line 2 lacks antecedent basis. It appears that the applicant intended the phrase to read "a group of light source characteristics". Appropriate correction is required.

Referring to claim 11, the phrase "***the*** group of controlled vehicle associated operating parameters" in lines 2-3 lacks antecedent basis. It appears that the applicant intended the phrase to read "a group of controlled vehicle associated operating parameters". Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-3, 40, 42, 44-53, 65-69, 71, 74 are rejected under 35 U.S.C. 102(e) as being anticipated by Breed et al., U.S. Patent No. 6,393,133 ("Breed"). Note that Breed incorporates by reference the article entitled "Learned Classification of Sonar Targets Using a Massively Parallel Network" by Gorman et al. ("Gorman").

Referring to claim 1, Breed discloses an automatic vehicular exterior light control, comprising:

a controller configured to generate at least one exterior light control signal as a function of a classification network, the controller is further configured to execute first algorithm comprising at least one second algorithm selected from the group comprising: an (dim) on state to (dim) off state transition state algorithm and a (dim) off state to (dim) on state transition state algorithm (col. 20, lines 12-38 and figure 8), wherein the classification network is trained using light sources classified using expert knowledge (col. 16, line 66-col. 17, line 19).

Referring to claim 2, Breed further discloses that the network comprises a neural network (col. 20, lines 16-18).

Referring to claim 3, Breed further discloses that the expert knowledge comprises experimental data (training set) [col. 16, line 66-col. 17, line 19 and col. 20, lines 12-38].

Referring to claim 40, see the rejection of at least claim 1 above.

Referring to claim 42, Breed further discloses that the (dim) on state to (dim) off state is entered when at least one light source (reflections off a signpost or the roadway) is detected (col. 20, lines 12-38).

Referring to claim 44, Breed discloses an automatic vehicular exterior light control comprising a method for classifying detected light sources, the method comprising the steps of

classifying at least one detected light source with a classification network, wherein an output of the classification network is indicative of the likelihood that the detected light source is a headlamp of an oncoming vehicle or a tail lamp of a leading vehicle (col. 16, line 66-col. 17, line 19 and col. 20, lines 12-38. Note that if the trained pattern recognition system recognizes the pattern of the headlights of an oncoming vehicle or the tail lights of a leading vehicle, then the output of the classification network would be indicative of a high likelihood that the detected light source is a headlamp of an oncoming vehicle or a tail lamp of a leading vehicle).

Referring to claim 45, Breed further discloses that the determination of the control state of at least one exterior light of the controlled vehicle is based upon the output of the classification network (col. 20, lines 12-38).

Referring to claim 46, Breed further discloses that the network comprises a neural network (col. 20, lines 16-18).

Referring to claim 47, Breed discloses an automatic vehicular exterior light control comprising a method of classifying detected light sources, the method comprising the steps of classifying at least one detected light source with a classification network, wherein the classification network determines the type of light source detected based upon at least one characteristic of at least one previously classified light source verified to be accurately classified by examining statistical data, wherein the statistical data is derived from a plurality of images containing known light sources (col. 16, line 66-col. 17, line 19 and col. 20, lines 12-38. Note that the "training set" used by the neural network for recognizing headlights would comprise of images of known light sources).

Referring to claim 48, see the rejection of at least claim 45 above.

Referring to claim 49, see the rejection of at least claim 46 above.

Referring to claim 50, Breed discloses an automatic vehicular exterior light control comprising a method of classifying detected light sources, the method comprising the steps of classifying at least one detected light source with a trainable classification network, wherein the classification network is trained using at least one light source classified using expert knowledge by examining statistical data, wherein the statistical data is derived from a plurality of images containing known light sources (col. 16, line 66-col. 17, line 19 and col. 20, lines 12-38. Note that the "training set" used by the neural network for recognizing headlights would comprise of images of known light sources).

Referring to claim 51, Breed further discloses that the expert knowledge comprises experimental data (training set) [col. 16, line 66-col. 17, line 19 and col. 20, lines 12-38].

Referring to claim 52, see the rejection of at least claim 46 above.

Referring to claim 53, see the rejection of at least claim 45 above.

Referring to claim 65, Breed discloses an automatic vehicular exterior light control, comprising:

a controller configured to generate at least one exterior light control signal as a function of a classification network comprising at least one weighting factor established by examining statistical data, wherein the statistical data is derived from a plurality of images containing known light sources [col. 16, line 66-col. 17, line 19 and col. 20, lines 12-38. See also Gorman, pages 1135-1139. Breed incorporates by reference Gorman. Gorman explains that the weighting factors are determined by examining statistical data that is derived from images containing known light sources (training set), see page 1136. Note that Gorman's system is used

for analyzing sonar data, and therefore the known data (training set) comprises known sonar values. However, Breed utilizes the trained pattern recognition system to analyze images of light sources. Thus, the known data (training set) in Breed's system would comprise at least one image containing at least one known light source].

Referring to claim 66, Breed further discloses a plurality of inputs and a plurality of weighting factors at least one of which is associated with each input (Gorman, pages 1135-1136. As noted above, Breed incorporates by reference Gorman).

Referring to claim 67, Breed further discloses at least one output that is based upon the sum of the inputs (Gorman, pages 1135-1136. As noted above, Breed incorporates by reference Gorman).

Referring to claim 68, Breed discloses that the neural network analysis further comprises at least one hidden layer node, and at least one weighting factor; wherein each hidden layer node is associated with at least one weighting factor (Gorman, pages 1135-1136. As noted above, Breed incorporates by reference Gorman).

Referring to claim 69, Breed discloses an automatic vehicular exterior light control, comprising:

a controller configured to generate at least one exterior light control signal as a function of a classification network comprising at least one weighting factor established by examining statistical data, wherein the statistical data is derived from a plurality of images containing known light sources and a substantially continuous output value indicative of a probability [col. 16, line 66-col. 17, line 19 and col. 20, lines 12-38. See also Gorman, pages 1135-1139. Breed incorporates by reference Gorman. Gorman explains that the weighting factors are determined

by examining statistical data that is derived from images containing known light sources (training set), see page 1136. Note that Gorman's system is used for analyzing sonar data, and therefore the known data (training set) comprises known sonar values. However, Breed utilizes the trained pattern recognition system to analyze images of light sources. Thus, the known data (training set) in Breed's system would comprise at least one image containing at least one known light source. Moreover, Breed also explains that the weighting factor is established during the learning/training stage by examining statistical data that is derived from a substantially continuous output value indicative of a probability (page 1136)].

Referring to claim 71, Breed discloses an automatic vehicular exterior light control, comprising:

a controller configured to generate at least one exterior light control signal as a function of a classification network comprising at least one variable, at least one weighting factor established by examining statistical data, wherein the statistical data is derived from a plurality of images containing known light sources and at least one output [col. 16, line 66-col. 17, line 19 and col. 20, lines 12-38. See also Gorman, pages 1135-1139. Breed incorporates by reference Gorman. Gorman explains that the weighting factors are determined by examining statistical data that is derived from images containing known light sources (training set), see page 1136. Note that Gorman's system is used for analyzing sonar data, and therefore the known data (training set) comprises known sonar values. However, Breed utilizes the trained pattern recognition system to analyze images of light sources. Thus, the known data (training set) in Breed's system would comprise at least one image containing at least one known light source. Moreover, Breed also explains that the weighting factor is established during the

learning/training stage by examining statistical data that is derived from at least one output (page 1136)].

Referring to claim 74, Breed discloses an automatic vehicular exterior light control, comprising a method of classifying detected light sources, the method comprising the steps of:

classifying at least one detected light source with a classification network, wherein an output of the classification network is a likelihood that said detected light source is a headlamp of an oncoming vehicle or a tail lamp of a leading vehicle wherein the classification network comprises at least one weighting factor established by examining statistical data, wherein the statistical data is derived from a plurality of images containing known light sources [col. 16, line 66-col. 17, line 19 and col. 20, lines 12-38. See also Gorman, pages 1135-1139. Note that if the trained pattern recognition system recognizes the pattern of the headlights of an oncoming vehicle or the tail lights of a leading vehicle, then the output of the classification network would be indicative of a high likelihood that the detected light source is a headlamp of an oncoming vehicle or a tail lamp of a leading vehicle. In addition, Breed incorporates by reference Gorman. Gorman explains that the weighting factors are determined by examining statistical data that is derived from images containing known light sources (training set), see page 1136. Note that Gorman's system is used for analyzing sonar data, and therefore the known data (training set) comprises known sonar values. However, Breed utilizes the trained pattern recognition system to analyze images of light sources. Thus, the known data (training set) in Breed's system would comprise at least one image containing at least one known light source

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 20, 24, 25, 27, 28, 35-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Breed et al., U.S. Patent No. 6,393,133 ("Breed") and Ii et al., U.S. Patent Application Publication No. 2004/0032981 ("Ii").

Referring to claim 20, Breed discloses an automatic vehicular exterior light control, comprising a controller configured to generate at least one exterior light control signal as a function of at a neural network (col. 20, lines 12-38), but does not explicitly disclose that the neural network comprises a probability function having a substantially continuous output value having at least three states indicative of a probability. However, this feature was exceedingly well known in the art. For example, Ii discloses a neural network for pattern recognition that comprises a probability function comprising a plurality of variables and a substantially continuous output value having at least three states indicative of a probability (page 2, paragraphs 17-22 and figures 1-2).

Breed and Ii are combinable because they are both concerned with neural network pattern recognition systems. Ii provides an enhanced pattern recognition system that could be applied to image analysis in a variety of different applications (page 1, paragraph 13). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the neural network of Breed in view of Ii. The suggestion/motivation for doing so would have been to

enhance the system by identifying and reducing errors during the pattern recognition process (Ii, page 1, paragraph 5). Therefore, it would have been obvious to combine Breed with Ii to obtain the invention as specified in claim 20.

Referring to claim 24, Breed further discloses that the controller is further configured to determine whether at least one light source is either a headlight of an oncoming vehicle, a taillight of a leading vehicle or a non-vehicular light source as a function of the neural network analysis (col. 16, line 66-col. 17, line 19 and col. 20, lines 12-38). As noted above, Ii discloses a neural network comprising a probability function. Thus, the combination of Breed and Ii determine whether at least one light source is either a headlight of an oncoming vehicle, a taillight of a leading vehicle or a non-vehicular light source as a function of the probability function.

Referring to claim 25, Breed further discloses that the determination is further a function of the brightness of the light source (col. 20, lines 12-38).

Referring to claim 27, Breed and Ii do not explicitly disclose that the probability function is selected from the group comprising a first order equation, a second order equation, a third order equation and a fourth order equation. However, Official notice is taken that probability functions selected from the group comprising a first order equation, a second order equation, a third order equation and a fourth order equation were exceedingly well known in the art. Therefore, it would have been obvious to modify the probability function of Breed and Ii so that it is selected from the group comprising a first order equation, a second order equation, a third order equation and a fourth order equation. The suggestion/motivation for doing so would have been to enhance the flexibility of the vehicular exterior light control system.

Referring to claim 28, Breed discloses an automatic vehicular exterior light control, comprising a controller configured to generate at least one exterior light control signal as a function of at a neural network (col. 20, lines 12-38), but does not explicitly disclose that the neural network comprises a probability function having a substantially continuous output value having at least three states. However, this feature was exceedingly well known in the art. For example, Ii discloses a neural network for pattern recognition that comprises a probability function comprising a plurality of variables, a plurality of weighting factors and an output value having at least three states (page 2, paragraphs 17-22 and figures 1-2).

Breed and Ii are combinable because they are both concerned with neural network pattern recognition systems. Ii provides an enhanced pattern recognition system that could be applied to image analysis in a variety of different applications (page 1, paragraph 13). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the neural network of Breed in view of Ii. The suggestion/motivation for doing so would have been to enhance the system by identifying and reducing errors during the pattern recognition process (Ii, page 1, paragraph 5). Therefore, it would have been obvious to combine Breed with Ii to obtain the invention as specified in claim 28.

Referring to claim 35, Ii further discloses that the neural network further comprises at least one output that comprises a substantially continuous value indicative of a probability (page 2, paragraphs 17-22 and figures 1-2).

Referring to claim 36, Breed further discloses that the weighting factors are determined experimentally by examining at least one image containing at least one known light source [Gorman, pages 1135-1139. Breed incorporates by reference Gorman. Gorman explains that the

weighting factors are determined experimentally by examining data that contains at least one known value (training set), see page 1136. Note that Gorman's system is used for analyzing sonar data, and therefore the known value (training set) comprises known sonar values. However, Breed utilizes the trained pattern recognition system to analyze images of light sources. Thus, the known data (training set) in Breed's system would comprise at least one image containing at least one known light source].

Referring to claim 37 and 38, see the discussion of at least claim 36 above. Breed further discloses that the weighting factors are determined by examining statistical data that is derived from a plurality of images containing known light sources (Gorman, pages 1135-1136. Breed incorporates by reference Gorman).

Referring to claim 39, see the rejection of at least claim 27 above.

8. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Breed et al., U.S. Patent No. 6,393,133 ("Breed"), Ii et al., U.S. Patent Application Publication No. 2004/0032981 ("Ii"), and Stam et al., U.S. Patent No. 6,049,171 ("Stam").

Referring to claim 26, Breed does not explicitly disclose that the determination is further a function of any AC flicker that may be present in the light source. However, this feature was exceedingly well known in the art. For example, Stam discloses the determination of a type of light source based on a function of any AC flicker that may be present in the light source (col. 11, line 66-col. 12, line 13).

Breed and Stam are combinable because they are both concerned with automatic vehicular exterior light control systems. At the time of the invention, it would have been obvious

to a person of ordinary skill in the art to modify the determination step of Breed so that it is based on a function of any AC flicker that may be present in the light source, as taught by Stam. The suggestion/motivation for doing so would have been to enhance the flexibility of the light source determination process by providing the capability of detecting a variety of different types of light sources. Therefore, it would have been obvious to combine Breed with Stam to obtain the invention as specified in claim 26.

9. Claims 43, 70, 72, 73 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Breed et al., U.S. Patent No. 6,393,133 ("Breed") and Stam et al., U.S. Patent No. 6,049,171 ("Stam").

Referring to claim 43, Breed does not explicitly disclose that at least one of the transition states comprises a series of levels and movement between levels is a function of light source brightness. However, this feature was exceedingly well known in the art. For example, Stam discloses a vehicular exterior light transition state that comprises a series of levels and movement between levels is a function of light source brightness (col. 8, line 13-col. 9, line 27).

Breed and Stam are combinable because they are both concerned with automatic vehicular exterior light control systems. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the transition state of Breed so that it comprises a series of levels and movement between levels is a function of light source brightness, as taught by Stam. The suggestion/motivation for doing so would have been to enhance the flexibility of the light control system by providing multiple levels of light transition. Therefore, it would have been obvious to combine Breed with Stam to obtain the invention as specified in claim 43.

Referring to claim 70, Breed does not explicitly disclose that input variables are selected from a group of light source characteristics comprising: peak brightness, total brightness, centroid location, gradient, width, height, color, x-direction motion, y-direction motion, brightness change, age, average x-direction motion, average y-direction motion, motion jitter, a change in brightness that correlates to a change in brightness of an exterior light of a controlled vehicle and average brightness change. However, this feature was exceedingly well known in the art. For example, Stam discloses input variables that comprise color and brightness change (col. 9, line 58-col. 10, line 67 and col. 15, lines 3-23).

Breed and Stam are combinable because they are both concerned with automatic vehicular exterior light control systems. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the system of Breed so that it includes the input variables of Stam. The suggestion/motivation for doing so would have been to enhance the performance of the lighting control system by providing additional information that could be utilized to control the vehicular exterior lighting. Therefore, it would have been obvious to combine Breed with Stam to obtain the invention as specified in claim 70.

Referring to claim 72, see the rejection of at least claim 70 above.

Referring to claim 73 as best understood, Breed does not explicitly disclose input variables that are selected from a group of controlled vehicle associated operating parameters comprising: vehicle speed, ambient light level, vehicle turn rate, lane tracking, vehicle pitch, vehicle yaw, geographic location and road type. However, this feature was exceedingly well known in the art. For example, Stam discloses input variables that comprise vehicle speed, ambient light level, and vehicle pitch (col. 7, line 26-col. 8, line 63).

Breed and Stam are combinable because they are both concerned with automatic vehicular exterior light control systems. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the system of Breed so that it includes the input variables of Stam. The suggestion/motivation for doing so would have been to enhance the performance of the lighting control system by providing additional information that could be utilized to control the vehicular exterior lighting. Therefore, it would have been obvious to combine Breed with Stam to obtain the invention as specified in claim 73.

Allowable Subject Matter

10. Claims 21-23, 29-34, 41 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Kim whose telephone number is 571-272-7421. The examiner can normally be reached on Mon thru Thurs 8:30am to 6pm and alternating Fri 9:30am to 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on 571-272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-272-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ck
September 22, 2006

JINGGE WU
PRIMARY EXAMINER